

SPECIFICATION

TITLE OF INVENTION

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Title of invention: Magnetically levitated rocking sleep system.

CROSS-REFERENCE TO RELATED APPLICATIONS

Not applicable

FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT

Not applicable

REFERENCE TO A MICROFICHE APPENDIX

Not applicable

BACKGROUND OF THE INVENTION

The invention intended to solve the problem of sleep disorders like insomnia and others. The invention can also prevent some medical complications.

Here are three quotes from three different Web sites.

Food and Drug Administration: "Each year, there are about 40 million people in the United States who suffer from sleeping disorders. An additional 20 million have occasional sleeping problems."

National Highway Traffic Safety Administration: "Drowsy driving causes more than 100,000 crashes a year, resulting in 40,000 injuries and 1,550 deaths."

National Sleep Foundation: "Lost productivity due to sleepiness has been estimated to cost the national economy as much as \$100 billion annually."

The sleep disorders usually develop at the mid age and can become severe, as the individual gets older. The medications commonly used by adults in order to prevent the sleep disorders or to fall asleep usually cause drowsiness and have side effects.

Among other means intended to help a human being to fall asleep and sleep deeply is the rocking motion. The rocking motion effectively helps infants to fall asleep and is used in cradles, swings, and bouncers. The rocking motion of hammocks and rocking chairs affects the adults the same way that the rocking motion of the cradle affects infants.

Adults get relaxed and often fall asleep. This happens despite the fact, that hammocks and rockers are not intended and inconvenient for the deep, long sleeping.

My idea was to combine a bed, which is a device intended for sleeping, and the relaxing rocking motion. Before getting into details of the rocking sleep system, I have set several conditions. The major condition was the providing the vast variety of motion patterns, amplitudes and speeds capable to accommodate different types of individuals. Such condition could be implicated the best in magnetically levitated bed.

I checked the US Patent Office database. I did not find patents on magnetically levitated rocking sleep systems or magnetically levitated beds. I found patents (## 4,006,499; 4,071,916; 4,419,777; 4,752,980; 4,881,285; 5,103,511; 5,502,853; 5,625,913; 6,385,801) on the rocking/oscillating beds for medical needs or cradles. All those inventions propose the use of more or less complicated mechanisms for providing uncomplicated cyclic motions. Magnetically levitated beds can provide omnidirectional mobility along and about three axes. Actually, much simpler bed with mobility about three axes would be fully satisfying the objectives of this invention. Such a bed is described in the specification.

SUMMARY OF THE INVENTION

The general idea of the invention is the use of the rocking motion of a bed in order to help individuals suffering from sleep disorders to fall asleep and sleep deeply. The rocking motion characteristics such as motion pattern, amplitudes, and speeds are adjustable and satisfy the individual preferences.

DESCRIPTION OF THE DRAWINGS

The Fig.1 and Fig.2 show orthographic views and a sectional view of the sleep system. The Fig.2 also shows basic motions which the system provides for an individual.

DETAILED DESCRIPTION OF THE INVENTION

Magnetically levitated rocking sleep system is intended to solve the problem of sleep disorders like insomnia and others. The system can also prevent some medical complications including pulmonary complications and bed sores.

The magnetically levitated rocking sleep system, or the rocking bed, has four main elements. Those elements are a base 1, a body 2, an arrangement of electromagnetic devices 3 and a control system 4. The arrangement of electromagnetic devices 3 and the control system 4 creates an electromagnetic field. The field provides an air gap between parts of the system mounted on the base 1 and parts of the system mounted on the body 2. By changing the electromagnetic field at the sleep system, the control system 4 and the arrangement of electromagnetic devices 3 provide a variety of rocking motions of the body 2.

While making my claim, I was trying to have it as wide as possible. That is why I did not specify the electromagnetic devices and the control system. The market has too many of these which can serve for the purpose of the invention. Various electromagnets, linear motors, magnetic bearings and control systems can be used.

As an illustration to my claim, I drew Fig.1 and Fig.2 showing the sleep system where the body 2 has three points of support. Two points of support are located at a headboard area of the body 2 and provide wide motion range. The third point of support is located at a footboard area of the body 2 and allows a rocking motion of the body 2 about the three axes.

The version of the sleep system where the body 2 has three points of support would be more simple to produce, less expensive, lighter, less bulky, and more energy efficient compare to other versions of the system. The three points of support system does not compromise the idea of the invention. The infants fell asleep in the cradles and swings not because their feet are rocked, but because their heads are rocked. This should be applicable to the adults.

People got used to the three-legged airplanes and four-legged beds. The three points of support sleep system might look exactly the same as a regular bed.

As for the stability; the system is going to be more stable then a tripod or a three-leg stepladder. If a person applies his or her weight at the footboard corner of the body 2, the diagonally located electromagnetic device would, with the help of the body 2 weight, hold its corner.

The stiffness of the body 2 can be increased by the mounting or forming diagonal support elements on the bottom of the body 2. The elements should be relatively high.

The energy efficiency of the system should be increased by including an additional timer to the control system program. The user sets the rocking time. After the time is over, the control system would slowly stop rocking and lower the body 2 on the base 1. The using of the timer would also reduce the user's exposure to electromagnetic field.

The control system should also have a backup battery in order to prevent free falling of the body 2 when the main power gets interrupted.